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PHILOSOPHICAL TRANSACTIONS.

March 25. 1676.

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The Preface.

IN this Preface to my Eleventh Volume, which, under the Divine favour, I now begin, I shall only take notice of what seems to be most deficient, or most of all to retard the general growth of Physiological knowledge.

C c c c

And,

And, I think, I may say, that a Natural History of Countries is most wanting; which, if well drawn, would afford us a copious view, and a delightful prospect of the great variety of Soyls, Fountains, Rivers, Lakes, &c. in the several places of this globe; and of the manifold effects, productions and operations of the Sun, and perhaps of other Celestial Influences, upon them all; or of Subterranean Steams, or peculiar winds, arising at state or uncertain times.

To explain my intentions, I would not here deny the praises justly due to many Ancient and Modern Geographers, Topographers, Hydrographers &c. and particularly to some late Travellers, who have made more accurate and faithful reports of the Countries where they have travelled, and more especially where they have made some abode, than formerly was done. And several of these have diligently recorded, what considerable alterations have been made in some places by later Culture: Neither can we subduct from the applauses of those Learned and Inquisitive Writers, who have searched deep into the Antiquities and Revolutions, which have hapned in the places they undertook to describe: And we must acknowledg many excellent, ingenious and truly Philosophical Histories of the Architecture, and grandeur, and situation of Royal and Noble Palaces, Cities, Cittadels, Fortifications, Towns, Bridges, Rivers, fertile Vales, Rocks and Mountains. But some of these have a Consideration a pari from Physiology, and do rather belong to Arts and Artifices: And some Writers are more concern'd for Panegyricks of the amœnities of the place, than will well sort with the true and modest relations of their Neighbours: As, when we read the beginning of the Ingenious Barclay's Euphormio, we are invited to prefer Scotland before any Paradise on Earth; which yet I do not blame or censure in that noble Romance: But in our designed Natural History we have more need of severe, full and punctual Truth, than of Romances or Panegyricks.

And it may deserve another Consideration apart, to record the Plagues, Epidemical Diseases, Droughts and excessive or permanent Heats, extreame or lasting Frosts, Famins, impetuous Storms, and Inundations, devouring swarms of Grasshoppers and Locusts (of divers kinds of both which the famous Purchas in his excellent Treatise of Flying Insects, ch. 31. hath an Historical Collection,) and other annoyances of Mankind: Whether beginning and ending in one place, and of what continuance; as the Horse-plague in our frsh memory continued about seven years in England; and the plague of Athens
wandering

wandred far, and made cruel slaughters of Mankind, and of Birds and Beasts also: And in the daies of Gallus and Volusianus, about the year 250, for fifteen years together, the Plague wandred from Æthiopia over all the remote Provinces; of which Lipsius saith, *Nec alia unquam major lues mihi lecta, spatio Temporum, five Terrarum.* Sometimes these annoyances do coast it from place to place; sometimes they rage at great distance of time and place, and sometimes (contrary to old rules and common expectations,) horrid Winters are nearer the South, when in the more Northern Countries the Frosts are remis, or the Air gentle; and, on the contrary, destroying Heats and Droughts are in colder Climats, when they have more Refrigerating seasons in the Sunny Climats; as in Octob. An. 1112 in England, the Thames, Severn and Trent were quite dried; and An. 1474, many Woods and Forrests were fired with Solar heat, and the Danube in Hungary so near dried up, that men passed over on foot. These instances seem to confirm those Authors*, who

* See Numb. 119. of these Tracts.

maintain, that Fountains and Rivers have their Originals from Rain and Snow. These few particulars of many hundreds I suggest on purpose, to shew. How much Mankind is concerned, and Nature discover'd, by such Historical Collections; perhaps in time to find out the causes of some of these annoyances, and possibly to prevent them, or to devise remedies as Epidemically preservative, as the maladies are Epidemically destructive. Of this kind of Literature I do not complain as neglected. Many excellent and industrious Chronologers have taken much pains in it. Alstedius from those, who wrote before him, drew down his Tables to the year 1630: And our Jackson re-examined all that laboured in it before his daies; and 'tis believed, that he had good assistance from the Learned Bishop of Winchester Dr. Andrews. And we are not without hopes, that as Learning grows on, the best Antiquaries will continue to correct and advance the Emendation of Times, with a special aspect into Nature, Concomitants, and Circumstances; which may be obtained, at good certainty, for many foregoing Ages, And for Celestial Revolutions, to the highest fame, the Tables may be recalculated for the fullest satisfaction Astronomically.

The last Consideration, which I shall here mention, aspires to a very high flight of human Reason. as merely human, and searches into one of the greatest depths of Nature, making the fullest discovery of Mankind, as Man is the Microcosme, and Divinæ particula auræ; namely

to collect and digest in one series, and to bring as into Methodical Volumes, or under one view, the shapes, features, statures, and all outward appearances, and also the intrinsic mental or intellectual of Mankind. Of this, the latter part, concerning the Humors and propensions of the mind, is very elegantly and well done by the forenamed Barclay in his *Icon Animorum*, as far as they were in his view, in the chief places of Europe, or as far as it agreed with his modesty to deliver a free and impartial judgment. And for this purpose, there are many fit parcels extracted out of the more ancient *Historiographers* by Joh. Boemus Aubanus, published about 60 years ago: The small Treatise is entitled, *Mores, Leges, Ritus omnium Gentium*. For externals, Ligon shows his excellent capacities and skill in painting, by describing the different shapes and features of Indians and Negros, p. 54. of his *Barbados*. The external difference seems easy for vulgar observation; the intrinsicals were intricate: Yet, without great subtlety, we may discern a vast difference between the neighbour Nations of France, Spain, Italy, and Germany; yea, between the People of the East and West, North and South in England. Now I conceive, there is as much difference between these characters, heaped up together promiscuously, and when they are sorted to their proper Climats, by longitudes and latitudes, for the detection of the nature of this Masterpiece, as the fairest, richest, and best order'd Gardens and Orchards are more beneficial, more beautifull, and give a more solid delight, than a painted Landskip of Biscaye, or some wild Grottesco. Yet this I propose also as a work apart for my present aim; but worthy of more supplies, and future diligence, as knowledge advanceth. Sueton, hath drawn to life both the Portraitsures and Insides of the XII Cæsars; and others have essay'd the like for the Princes, Eminent Persons, and Peoples of several Nations; so that we want not good Exemplars for the encouragement of this work.

After these acknowledgments of the just merit of those excellent Authors, who have recovered the culture and improvements of their Countreys, or the artificial ornaments, Architectures and Ingenio's (such as may be referr'd to the Cabinets, copper Cuts and Engravery of Monsieur De Marolles, as he is celebrated in Mr. Evelyn's *elaborat Chalco-graphy* p. 135, 136.) and of those industrious Registers of the extraordinary occurrences in all Ages, which cannot be explicated for Physiological uses, but only by the Methods and Extracts of Chronology; and lastly of those curious and argute Historians that have illustrated the
characters

characters of Mankind under several Descriptions, in many Nations antient and modern: If I may now have leave to clear my present sense freely by instances, I humbly conceive, that we may see more of the nature of the Places in the learned Descriptions of many parts of America, and of some Countreys remote, and thinly inhabited in the North, than in the Geography of our most richly cultivated and polite Neighbourhood of France, Italy, Spain, Germany, &c. (excepting always the culture, improvement, and artificial ornaments of those last nam'd places:) where yet there is no small number of able and curious Naturalists, and who have advanced far in describing many of the most considerable parts and productions of Nature; but have not hitherto reduced the whole & unmix'd process of Nature into a compleat body, either answerable to our modern progress in discovering other Physiological Phenomena, or to the instructions for such a Natural History of Countreys, as was timely given in Numb. 11. of these Tracts. Neither have we yet received satisfactory answers to some of the Inquiries publish'd in our foregoing Volumes, which were intended to solicit a confirmation (after a severe examen) of such particulars as might seem to us strange, but were reported by Authors of good note.

In pursuit of this design for England, a Learn'd Doctor hath laid a good foundation in his Pinax, abbreviated Num. 20. Another worthy Person hath well examin'd, what Vegetables are native here or in the Islands about us, and recorded where they may be found. Several accounts are taken of the Mineral or Healing-Fountains of note amongst us, and more of late discover'd than formerly observ'd. And of Mines there are good Authors abroad. And from Cornwall we are told of the Shelf or Fast-grounds, which they conceive to have never been mov'd, how it differs from the moveable or mov'd parts of Earth, Numb. 69. And it were to be wish'd, that in all Mines and where ever deep wells are digged, notice were taken, in what order the several kinds of Earth, loam, sand, gravel, &c. do lye. For Insects, some have out-gone (by parcels) the accuratness of Muffet, and former Authors. And for Fishes that may be found in our Lakes and Rivers, we see a fuller catalogue than we could expect, in the 4th Part of the Gentleman's Recreation. And in Muffet's Healths Improvement, we have an elder list of the same, and of such Fish as may be taken in our Creeks and Seas, and how both sorts may be best order'd for our English diet. And the observations on the Bills of Births and Mortality are of manifold use in relation to life, and health; and our Epidemical infirmities, and also to our Politicals.

And

And Mr. Boyle discover'd and published the use of the Baroscope, to remark the weight of the Atmosphere and the changes of that weight in his first Treatise of Pneumatics an. 1663; that the Mercury ascended in England to 30 inches, and above $\frac{1}{2}$, Exper. 17th; that it changed within five weeks to full two inches, Exper. 18th; and the changes, in reference to heat, cold, wind, weather, and other alterations of the air, or whatever secret circumstances, have been remarked at London, Oxford, far in the West and other parts of England, these 10 years and upwards. The Wheel-Barometer perfected, Num. 13. Another Statical Baroscope accurately devised, N. 14. And many other Instruments contrived and Materials prepared, which may make a deeper and closer discovery of the nature of a Place, than hath formerly been observ'd. And besides what is done as proper for this Island, there was begun by Dr. Ger. Boate, and publish'd an. 1652. Ireland's Natural History, which if the Author had lived to finish, had been much fuller; and 'tis hoped that others will soon give it a larger measure of perfection. So that, though we are in this address somewhat tardy, yet, I think, we are not much behind our neighbours. And some have also made considerable researches which extend far beyond these our Climates. But I must forbear. If I am prolix here, it may be considered, that this is a pregnant part of our main business in Physiology; and it may be interpreted for a good proof of no monopolizing envy of us, in that we are willing to provoke our Neighbors to excel us in things that are truly good and excellent.

A particular Answer of Mr. Isaac Newton to Mr. Linus his Letter, printed in Numb. 121. p. 499. about an Experiment relating to the New Doctrine of Light and Colours: This Answer sent from Cambridge in a Letter to the Publisher Febr. 29. 1678.

Sir,

BY reading Mr. Linus's Letter when you shew'd it to me at London, I retained only a general remembrance, that Mr. Linus deny'd what I affirmed, and so could lately say nothing in particular to it; but having the opportunity to read it again in Numb. 121. of the *Transactions*, I perceive he would persuade you, that the information you gave him about the Experiment is as inconsistent with my printed Letters as with experience; and therefore, lest any who have not read those Letters should take my silence in this point for an acknowledgment, I thought it not amiss, to send you something in answer to this also.

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